A Proposed Method for Assessing the Performance of Local Public Health Functions and Practices

ABSTRACT

Objectives. One of the objectives for the nation for the year 2000 requires that 90% of the population be served by a local health department effectively carrying out the core functions of public health. This study proposes a method whereby determinations can be made of the extent to which a local public health jurisdiction is served by core public health functions, as well as the extent to which the functions are rendered by the health department.

Methods. Fourteen health departments under longitudinal study between 1979 and 1992 were studied. Respondents in each department completed a survey protocol using 81 indicators linked to standard public health functions and practices. Results are presented in graphic form, which provides a visual profile of public health performance for a local jurisdiction.

Results. The graphic profiles successfully differentiate one jurisdiction from another, and within each jurisdiction they differentiate the performance levels of different public health practices. The method enables identification of the full range of public health providers.

Conclusions. Current definitions of public health practice have utility for evaluating public health performance. The validity of the proposed method deserves further study. (Am J Public Health. 1994;84:1743–1749)

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Introduction

During recent years the functions and practices identified with public health have been substantially clarified. An Institute of Medicine report defined three core public health functions: assessment, policy development, and assurance. Various work groups sponsored by the Public Health Practice Program Office of the Centers for Disease Control and Prevention (CDC) elaborated these definitions by linking them with 10 specific public health practices. The core functions and 10 practices are defined as follows^{2,3}:

- Assessment is the regular systematic collection, assembly, analysis, and dissemination of information on the health of the community. Assessment practices are specifically the following:
 - Assess the health needs of the community
 - Investigate the occurrence of health effects and health hazards in the community
 - Analyze the determinants of identified health needs
- Policy development is the exercise of the responsibility to serve the public interest in the development of comprehensive public health policies by promoting the use of the scientific knowledge base in decision making. Policy development practices are specifically the following:
 - Advocate for public health, build constituencies, and identify resources in the community
 - Set priorities among health needs
 - Develop plans and policies to address priority health needs

- Assurance is the assurance to constituents that services necessary to achieve agreed-on goals are provided by encouraging actions of others (private or public), requiring action through regulation, or providing service directly. Assurance practices are specifically the following:
 - Manage resources and develop organizational structure
 - Implement programs
 - Evaluate programs and provide quality assurance
 - *Inform and educate* the public

These definitions provide a framework for assessing public health performance. In this article we describe experience with a protocol for measuring informed perceptions of performance for each of the 10 public health practices in an entire community or public health jurisdiction, as well as the extent to which these practices are carried out by the official local public health agency. Findings are reported from use of the protocol in 14 communities that have been the subject of longitudinal case study between 1979 and 1992.⁴⁻⁷ The communities were selected in 1979 from a list recommended for outstanding performance, especially with regard to personal health services.4 Survey results were used to prepare a

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.32 [.27] ₹ .50 [.38] .25 [.19] .58 [.58] .25 [.19] .74 [.49] .25 [.13] .25 [.19] .44 [.38] 35 [.28] .37 [.25] .39 [.30] ಹಿ 32 .65 [.57] 0 [0] .14 [.10] .63 [.35] .60 [.45] 0 [0] .50 [.25] .67 [.57] .59 [.50] .70 [.65] [. [0] .41 [.31] *Derived from dividing the actual score by the possible raw score. The first ratio in each column indicates jurisdictional score ratios; those in brackets represent departmental performance ratios $\mathbf{\alpha}$.75 [.58] .25 [.19] .58 [.46] 53 [.41] 33 [.26] .46 [.34] [36] 50 [.25] 82 [.77] 0 [0] 0 [0] 52 .42 [.13] .59 [.48] .69 [.61] .57 [.41] .56 [.41] .33 [.22] .42 [.21] .44 [.28] .50 [.33] .50 [.34] Performance Ratios for Each Jurisdiction and Departmenta 9 8 8 8 8 .63 [.52] .25 [.19] .25 [.13] .38 [.28] .53 [.47] 60 [.56] თ 8888 64 [.44] .57 [.39] .21 [25] [4. 57 [.44] œ 85.55 65.03 51 50 | 50 | TABLE 1—Scores from Performance Survey of 14 Local Public Health Jurisdictions and Their Health Departments .75 [.48] .67 [.38] .67 [.28] .70 [.38] .42 [.16] .55 [.47] .65 [.61] .63 [.44] 88.5 65 [.54] 88 25 25 35 .67 [.51] .86 [.73] .74 [.74] .76 [.66] .57 [.33] .55 [.35] .63 [.45] <u>8</u> 2 4 9 33 25 8 3 25 66 [.59] <u>4</u>.66 .68 [.56] .75 [.63] .79 [.75] .50 [.50] .50 [.50] .81 64 [.60] 66 [.58] 8 3 S 50 [64 [83 [63 | 64 | 65 | .60 [.41] .69 [.51] 86 [.64] 51 6 2 8 4 0.088.88 33 [.75 [.63] .75 [.57] .58 [.44] .55 .76 [.65] က 8 82.7.8 .75 [.57] .75 [.69] .75 [.65] .75 [.64] .88 [.60] .89 [.79] .88 [.75] .75 [.75] .85 [.72] .76 [.65] .50 [.36] .77 [.77] .78 [.67] 68 [.60] 8 .67 [.47] .86 [.82] .85 [.72] [79] 67] .77 [.59] 78 [.63] .73 .57] 8888 77 [.62] 4 88888 Performance Ratios^{a,b} .65 [.49] .77 [.68] .38 [.30] .54 [.39] .66 [.48] .43 [.33] .53 [.38] .54 [.40] 60 [.49] Data are graphed in Figures 1 and 2. 120 110 270 888 8888 Policy development Inform/educate Overall mean Function mean Function mean Function mean Functions and Manage Implement Investigate **Practices** I Assessment Advocate Assurance Evaluate Analyze ≡

graphic profile of public health performance for each jurisdiction and for its health department.

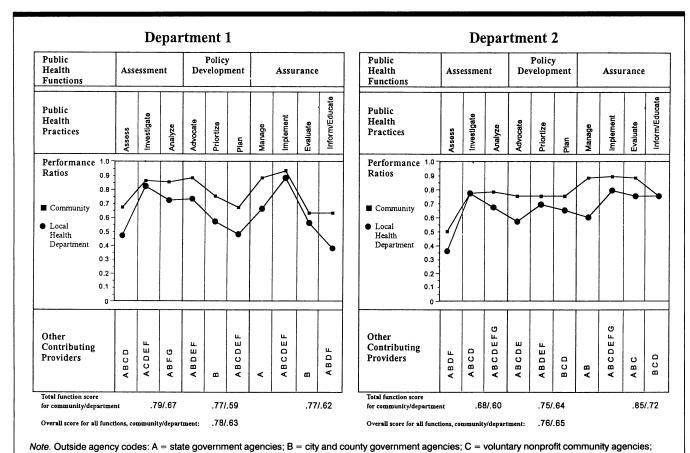
Methods

The Survey Protocol

Eighty-one performance indicators linked to the 10 public health practices were selected for incorporation in a survey protocol. Indicators were drawn from the following sources: Assessment Protocol for Excellence in Public Health⁸; CDC's set of consensus indicators for assessing community health status and monitoring progress toward the year 2000 objectives⁹; Profile of State and Territorial Public Health Systems: United States, 1990¹⁰; and Turnock and Handler's 1992 set of performance standards and performance indicators for surveillance of effective public health practice.³

The leading criterion for including an indicator was its relevance for an entire community or public health jurisdiction as well as for a local public health agency. Indicators from the sources reviewed are more plentiful for some functions than for others (e.g. assessment as opposed to policy development). An effort was made to balance the distribution of indicators among the three functions and to link each indicator with 1 of the 10 practices. Those identifications are matters of professional judgment and in some instances are arguable. The entire survey and its scoring system were reviewed and approved by a panel of national experts on state and local health department issues. The full list of indicators, categorized by function and practice, and details on the system for scoring responses are available on request.

Survey queries about the indicators were framed in one of two ways. First, queries regarding general or systemsrelated services were constructed in the following fashion. A sample assessment function read, "In the past 3 years, has there been a survey for your jurisdiction to assess participation in appropriate agespecific preventive and screening services?" [Assess]. Respondents answering affirmatively were then asked to score the adequacy of the survey on a 5-point scale ranging from "not at all" to "the need is fully met." Next, respondents were asked to identify the agencies performing the surveys and the proportion of total effort, on a 5-point scale, contributed by the health department. A query on policy development read, "Does your jurisdiction have available a timely community



D = hospitals, practitioners, and private clinics; E = Community and Migrant Health Centers; F = universities; and G = other.

FIGURE 1—Selected graphic profiles of public health performance: two public health jurisdictions with the highest scores.

action plan that was developed with public and constituency participation?" [Plan]; a query on assurance, "Is there a regular process for assessing public health programs and services to determine their impact on health status and risks?" [Evaluate].

Second, other indicators of a taskoriented nature were framed by presenting a list of specific public health endeavors and asking respondents whether the work was provided, which agency did it, and if the need was fully met. A query on an assessment indicator read, "Are timely data available on the basic series immunization rate for children age 2 years and under?"; one for assurance, "Is the jurisdiction served by programs to provide environmental protection in the following areas: air quality control, occupational health and safety [and so forth]?"

The survey was sent to directors of each of the 14 health departments. The participating health departments were Appalachia District II, South Carolina; Cincinnati, Ohio; Contra Costra County, California; Cortland County, New York; Craven County, North Carolina; Denver, Colorado; Lane County, Oregon; Maricopa County, Arizona; Memphis—Shelby County, Tennessee; Multnomah County, Oregon; Newark, New Jersey; Seattle—King County, Washington; Thurston County, Washington; and Yolo County, California. The directors were asked to convene senior staff for discussion of the queries and then to arrange a telephone appointment with the project director for completing the questionnaire by taped interview.

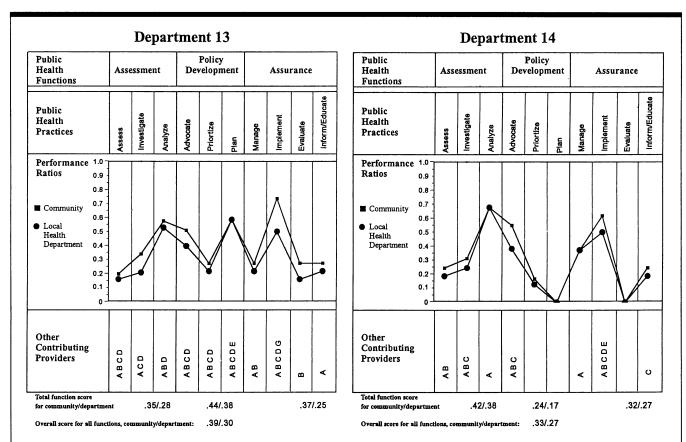
Scoring

Two scores were recorded for each indicator—one for the community and another for the health department. All points for a score maintained identification with each of the 10 public health practices. Performance ratios were calculated as the proportion of a possible perfect score. For each general or systems indicator, the local health department's score was calculated as a percentage of the community score for that indicator based on responses to the scale measuring

the share contributed by the health department. The score for the health department's performance is, therefore, never greater than the community score.

For the specific or task-oriented indicators, health departments received no points if the need was not met and the health department offered no service; half score if the need was not met and the health department offered an appropriate service; and full score if the need was fully met, whether or not the local health department offered the appropriate service.

The first column in Table 1 shows that raw scores for the various practices are weighted differently. For example, the total possible score for *analyze* is 270 but only 80 for *evaluate*. These differences are a consequence of variation in the number of measurable indicators available for linkage to each practice, rather than from any reasoned effort to assign levels of importance to the practices. The differences in weighting are eliminated by use of the performance ratios. Performance ratios for each of the three functions and



Note. Outside agency codes: A = state government agencies; B = city and county government agencies; C = voluntary nonprofit community agencies; D = hospitals, practitioners, and private clinics; E = Community and Migrant Health Centers; F = universities; and G = other.

FIGURE 2—Selected graphic profiles of public health performance: two public health jurisdictions with the lowest scores.

TABLE 2—Aggregate Proportion of Community-Based Health Practice Attributed to Local Health Departments (All 14 Jurisdictions)

Functions and Practices	Mean % for All Health Departments			
I Assessment				
Assess	62			
Investigate	84			
Analyze	91			
Function mean	79			
II Policy development	t			
Advocate	73			
Prioritize	77			
Plan	72			
Function mean	74			
III Assurance	•			
Organize	76			
Implement	88			
Evaluate	79			
Inform/educate	72			
Function mean	79			

for overall performance were calculated by taking a mean of the performance ratios for the respective practices, thereby further eliminating differences in the weights of raw scores.

Results

Telephone interviews lasted about an hour for completion of the survey in each locale. The respondents' preparatory time for the interview was variable, but in all but two instances there was evidence of prior consultation with staff and marshalling of evidence. In most cases the health department's director responded; this responsibility was delegated to senior associates in a few of the largest departments. The queries posed no serious problems except in two respects. In large communities, listing the full range of providers contributing to performance for each indicator was a daunting task. In compiling the findings, a scheme to aggregate the providers into broad categories was developed.

A second problem arose in defining performance that should be attributed to the health department as opposed to a composite administrative agency of which the health department is a part. For example, if public primary ambulatory care, environmental health, and public health are administered as separate units under an umbrella agency, what are the parameters of the health department? Respondents were counseled to respond as if the health department included those activities falling under the authority of the jurisdiction's public health officer. Inconsistencies are known to have occurred.

Raw scores and performance ratios for each of the 14 communities and health departments are recorded in Table 1. The performance ratios are illustrated in graphic form in Figure 1 for the communities having the two highest total scores and in Figure 2 for those having the two lowest total scores.

Community or Jurisdictional Scores

Aggregate community-based mean performance ratios for the 10 practices

TABLE 3—Number of Local Health Department Respondents (n = 14) Reporting Contributions by Other Provider Groups to Performance of Various Public Health Practices

	Provider Group	Assessment			Policy Development			Assurance				
		Assess	Investigate	Analyze	Advocate	Prioritize	Plan	Manage	Implement	Evaluate	Inform/Educate	
Α.	State government agencies	14	13	13	13	6	10	14	13	5	6	
В.	City and county government agencies	14	11	12	14	13	11	10	14	10	10	
C.	Voluntary nonprofit agencies	10	6	5	11	8	8	1	14	4	6	
D.	Hospitals, practitioners, private clinics	7	8	0	6	9	6	8	14	1	4	
Ε.	Community and migrant health centers	1	4	4	6	1	4	0	8	0	0	
F.	Universities	3	2	3	2	2	2	0	5	1	2	
G.	Other	1	0	7	0	0	1	2	1	0	2	

fall within a range of .38 to .77 (mean = .57; median = .58). Performance differences among the three functions were narrow (assessment = .60; policy development = .54; assurance = .59). Among the 10 practices, evaluate (.38), prioritize (.43), and assess (.45) had the lowest scores. The highest scores for public health practices were for implement (.77), analyze (.71), advocate (.66), and manage (.65).

Analysis of performance ratios for the separate communities showed that only two were protected by all 10 public health practices above the .50 level. Zero levels of performance were reported for three communities with regard to evaluate and for one community with regard to three other practices: prioritize, plan, and inform/educate.

Health Department Scores

The proportion of community-based public health performance attributed to the health departments follows a consistent pattern for all 10 practices (mean = 77.4%; median = 76.5%; Table2). Local health departments contribute least to gathering data on health status (assess = 62%) but contribute most (91%) to analyzing data available from all sources. Variation among the departments in their proportional contributions to total performance in their respective communities is not great. Overall contribution ranges between 68% and 89% (mean = 77.6%; median = 77.5%). Inspection of variation among departments according to each of the separate practices reveals only 5 instances (among 140 possibilities) where the health department's contribution falls below the 50th percentile of total community performance (once each for plan,

assess, and investigate and twice for inform and educate).

When the performance ratios were graphed, they demonstrated that the responses differentiated one community from another and variously illustrated the proportional share of total public health performance that is contributed by the health department. The various public health practices were successfully differentiated from one another, as demonstrated by different levels of performance.

Other Public Health Providers

So many agencies were identified as providers of some portion of the various public practices at the local level that for purposes of analysis the following aggregations were developed:

Group A: State government agencies (e.g., state health agency and agencies for environmental protection, mental health, and occupational health and safety)

Group B: City and county government agencies (e.g., departments of social services, public works, environmental health, and animal protection/control)

Group C: Voluntary nonprofit community agencies (e.g., family planning, chapters of heart and lung associations, Urban League, Junior League)

Group D: Hospitals, physicians, and private clinics

Group E: Community and Migrant Health Centers (agencies supported through Public Health Act Sections 329 and 330)

Group F: Universities

Group G: Other (e.g., federal agencies such as CDC, foundation-sponsored projects)

Data on the number of respondents reporting contributions by the various groups of providers to each of the public health practices appear in Table 3. State agencies are strongly represented in all the practices at local levels except for prioritize, evaluate, and inform/educate. Government agencies at local levels (other than the health department) are strongly represented in all the practices. Voluntary nonprofit agencies contribute to public health practices in more than 50% of the communities for assess, advocate, prioritize, plan, and implement. Hospitals, practitioners, and private clinics contribute to assess, investigate, prioritize, manage, and implement in half or more of the communities. No other provider group contributes to any of the public health practices in more than half of the communities except for implement, part of the assurance function. Community and Migrant Health Centers assist with the implement practice in eight communities. That aspect of public health practice depends more than any other on multiple providers.

Public health performance was assisted by multiple providers in the highest-scoring jurisdictions more than in the lowest-scoring jurisdictions (Figure 1).

Evaluation

Scores and graphs for each jurisdiction were shared with the jurisdiction's health department director, soliciting comment. Most of the directors responded that the graphic profiles accurately portray public health practice in their jurisdictions. A few doubts were raised around scores for one or another of the practices, usually assess, but these were allayed after review of the survey responses and the scoring method. One respondent per-

sisted in thinking the graph did not accurately reflect the strength of his department's performance in policy development. Several directors reported that the graphic profiles had been discussed at staff meetings and provided a useful exercise in self-analysis and staff development.

Further validation of results was attempted by asking health department directors to nominate officials in the state health agency and leaders in the local community who were knowledgable about public health to review the graphic profiles for accuracy. Such reviews were done by state health officials for 12 departments and by community reviewers for 4 departments. In all instances the reviewers affirmed the overall accuracy of the profiles. When exceptions were made, they tended toward a judgment of slight overestimation of performance for a few of the practices. Other methods for validating the survey protocol and graphic profiles are in progress. Procedures involve survey of a large unselected sample of departments, review of findings with state public health liaison officers, and site visits to a sample group of departments to confirm the accuracy of the survey responses.

Discussion

Health objectives for the nation for the year 2000 include objective 8.14, which specifies, "Increase to at least 90 percent the proportion of people who are served by a local health department that is effectively carrying out the core functions of public health."11 Increasing the precision of the definitions of and indicators for effective public health practice invites efforts to measure progress toward achieving that objective. Development of the survey protocol reported here was part of that effort. Experience so far suggests that the procedure is too elaborate for mass screening of communities and health departments, but it may have utility for detailed community diagnosis and analysis of public health performance. Portions of the survey are being analyzed for their possible utility in preliminary screening for areas of strength and weakness.

Several aspects of the early experience with the protocol invite interpretation. The findings are based entirely on perceptions of respondents. These respondents were not inexperienced, averaging 7 years of tenure as directors. In nine of the departments, health officers had graduate degrees in public health. No solid docu-

mentation is yet available on the extent to which respondents' perceptions reflect the reality of public health performance. An effort will be made to correlate impressions reported on this survey with data available from other sources. For example, a need reported as fully met can be checked with available data on immunization rates, prenatal care, clinic waiting times, and so forth.

Even though such validation will be valuable, the importance of perception deserves attention in its own right. Policies and programs are driven by perceptions as well as by data. Circumstances for policy and program development are clearly improved to the extent that impressions are based on solid evidence. Many of the impressions measured by the survey are grounded in the respondents' prior review of available data.⁶

The departments on which the survey protocol was tested cannot be construed as a typical sample. They were initially selected as exemplars by members of the Model Standards work group using a Delphi technique.⁴ In the intervening years, the departments have continued to perform impressively; their directors have been conscientiously cooperative under outside scrutiny. Whether other departments and other directors would be equally conscientious and self-critical in sharing impressions is by no means certain. That question deserves further field testing.

The large number of agencies contributing to public health performance at the local level presented problems to respondents. Some respondents, however, valued the effort to compile a roster of other community providers analyzed according to public health functions and reported that recalling the names of other contributing agencies was a fruitful exercise. The extent to which public health leaders promote and facilitate the contribution of other providers is an important consideration not revealed by examination of the graphic profiles. Interpretation of findings should rightfully emphasize that a high community score and a low health department score could represent responsible public health performance.

Experience with the protocol draws attention to a perennially vexing problem—defining exactly what a health department is. Variations in organization and in the sharing and dispersal of public health functions among a variety of administrative units lend credence to an approach that regards a community or entire political jurisdiction as the neces-

sary unit of analysis, rather than any one agency serving the community.¹²

Further studies on the use and meaning of the survey protocol are in progress. They include statistical correlations of the reported data on these departments^{6,7} and plans to extend use of the protocol with a different set of public health jurisdictions. A trial will be conducted to complete the survey by means of consensus-building techniques in a small-group process, involving the health department director and three to four other people knowledgable about the health status and services of the community. Further work is indicated to define and categorize the contributions by public health providers other than the official agency. In the meantime, the survey protocol is available on request to other investigators and public health officials who may wish to explore its uses and modifications.

Acknowledgments

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